

that "but little reliance can be placed on them as a means of transit; besides, here again, two individuals, or a pregnant female, would be required to effect a settlement on a foreign shore. The existence of oceanic islands is often urged as a proof of this inability to cross tracts of sea; even those which are comparatively near an extensive continent, such as, for example, Fernando IsToronha in the Atlantic, are destitute of mammals (except, indeed, the ubiquitous Mouse, which is believed to have been carried there, often in company with the equally widely-spread Rat, in ships). This argument, however, is not so conclusive as might appear; it doubtless is in the case of far-distant islands. But the size of the islands has to be taken into account. If there are islands, such as the Galapagos, or, to take a less contested instance, some of the islands of the Malagasy Archipelago, undoubtedly continental, which have an exceedingly reduced number of mammals. An area of a certain size seems to be a necessity.

The converse of this is in many cases easy to show, that is, the wide range of animals when there are no marine barriers to stop their spreading. John Hunter, the celebrated anatomist and surgeon (not often quoted, however, as an authority upon geographical distribution), observes: "It is a curious circumstance in the natural history of animals to find most of the northern animals the same both on the continent of America and what is called the Old World, while those of the warmer parts of both continents are not so. Thus we find the bear, fox, wolf, elk, reindeer, ptarmigan, etc., in the northern parts of both. The reason why the same animals are to be found in the northern parts is the nearness of the two continents. They are so near as to be within the power of accident to bring the animals, especially the large ones, from one continent to the other either on the ice or even by water. But the continents diverging from each other southward, so as to be at a very considerable distance from each other even beyond the flight of birds, is the reason why the quadrupeds are not the same."

There is no doubt, in fact, that the ocean is the most insuperable of all barriers to the dispersal of mammals. In a less degree mountain ranges and deserts are also barriers. The Desert of Sahara is a striking instance to the point; it separates two exceedingly different faunas^